

DIALYSIS

Nocturnal hemodialysis might improve patient survival

Nocturnal hemodialysis might be associated with improvements in patient survival, according to a paper published in *Kidney International*.

Frequent hemodialysis regimens such as nocturnal hemodialysis (NHD) and short-duration daily hemodialysis (SDHD) are thought to be better tolerated than conventional thrice-weekly hemodialysis (CHD). However, few data exist on survival and hospitalization outcomes among users of such regimens. “No studies have investigated these questions by comparing patient cohorts that have been carefully matched on multiple characteristics including prior hospitalization history,” states Nancy Kutner, corresponding author of the current study.

Kutner and colleagues used data from the United States Renal Data System database for 94 patients who had been on NHD and 43 patients who had been on SDHD for ≥ 60 days, dialyzing 5 or 6 times

per week. Each patient was propensity-score matched to 10 control patients on CHD. Matching was performed for multiple variables including age, gender, ethnicity, cardiovascular conditions, BMI, months on dialysis, and all-cause, cardiovascular and vascular access hospital admissions and hospital days per person-year. “Comparing groups of patients who are similar based on propensity-score matching helps to minimize the chance that any observed outcome differences between patients using frequent hemodialysis therapies and controls are due to selection bias that favors frequent hemodialysis users,” explains Kutner.

Patients on NHD had a significantly lower mortality risk than those on CHD (hazard ratio 0.36; $P=0.0001$) and a reduced risk for a combined outcome of mortality or a major morbid event (hazard ratio 0.56; $P=0.01$). SDHD was not associated with a significantly reduced risk

of death, and hospitalization rates were similar between NHD and SDHD patients and their controls.

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“The findings regarding survival are consistent with accumulating evidence from other studies that have included fewer control variables,” states Kutner, “but suggest the need for additional research to investigate hospitalization outcomes among frequent hemodialysis users compared to controls.”

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Original article Johansen, K. L. *et al.* Survival and hospitalization among patients using nocturnal and short daily compared to conventional hemodialysis: a USRDS study. *Kidney Int.* 76, 984–990 (2009)